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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re the application of:

Shinichi AYABE et al.

Serial Number: 09/890,646

Group Art Unit: 1638

Filed: August 2, 2001

Examiner: R. Kallis

For: POLYNUCLEOTIDE ENCODING 2-HYDROXYISOFLAVANONE SYNTHASE

RESPONSE TO LACK OF UNITY OF INVENTION HOLDING
DATED DECEMBER 3, 2002

Assistant Commissioner
for Patents
Washington, D.C. 20231

January 2, 2003

Sir:

This paper is submitted in response to the Office Action dated December 3, 2002.

In the Action, the following inventions are held not to be so linked as to form a single inventive concept under PCT Rule 13.1:

- (I) Claims 1 and 10-11, identified in the Action as being directed to a 2-hydroxyisoflavanone synthase;
- (II) Claims 2-4, 7-8, 12-16 and 19-22, identified in the

Action as being directed to a full length sense 2-hydroxyisoflavanone synthase DNA, expression construct, host cells, and transgenic plant and methods of their use; and

(III) Claims 2-9, 12-14, 17-19 and 22-24, identified in the Action as being directed to an antisense 2-hydroxyisoflavanone synthase DNA, expression construct, host, cells, and a transgenic plant.

An election of one of the "inventions" is required.

Applicants elect the subject matter of group (II), Claims 2-4, 7-8, 12-16 and 19-22. This election is made with traverse.

According to PCT rule 13.2, the requirement of unity of invention referred to in Rule 13.1 is fulfilled when there is a technical relationship among the claimed invention that involves one or more of the same or corresponding special technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

A sense sequence and antisense sequence of 2-hydroxy isoflavanone synthase, which were previously unknown, and 2-hydroxy

isoflavanone synthase encoded by the sense sequence have a technical relationship involving the corresponding special technical features since elucidation of a sequence of a full-length cDNA of 2-hydroxy isoflavanone synthase automatically leads to the antisense sequence and the amino acid sequence corresponding thereto. Furthermore, there is no prior art showing the sense sequence, the antisense sequence or the amino acid sequence of 2-hydroxy isoflavanone synthase. Therefore, the present application meets the requirements of unity of invention (PCT rule 13).

The Office has taken the position in the Action that the inventions of Groups II and III do not constitute an advance over the prior art for the reason that the "claimed polynucleotide of SEQ ID NO:1 is described in part, from nucleotides 1521 to 1733" citing Accession No. D89436 by Akashi et al. in Plant Science (1997) Vol. 126, pp. 39-47. The reference is stated to read on claims 2, 5-6 and 8-9 of Groups II and III that recite "a polynucleotide substantially comprising a nucleotide sequence encoding the synthase of Claim 1" or a "polynucleotide which can be hybridized to at least a part of a polynucleotide having the

nucleotide sequence 144-1712 of SEQ ID NO:1."

The position of the Office is not correct when the claims are read in light of the specification disclosure as they must be. On page 4, lines 11-15, the terminology "substantially comprising" is defined as "not only a nucleotide sequence which has 50% or more of homology to the nucleotide sequence comprised in SEQ-ID-No.:1, and encodes IFS or the nucleotide sequence complementary thereto, but a sequence wherein an adequate sequence is added thereto at 5'-end or 3'-end or both of them." The sequence of the cited reference does not meet this limitation. Additionally, the Office has not shown by proper evidence or reasoning how the sequence of the reference meets the limitations recited in claims 5-6 and 8-9. It is also noted that the cited reference relates to cytochrome P450 which is different from 2-hydroxyisoflavanone synthase. Accordingly, Groups II and III have an advance over the prior art and unity of invention exists.

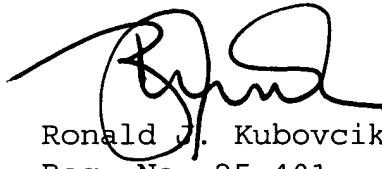
The foregoing is believed to be a complete and proper response to the Office Action dated December 3, 2002. A favorable action on the merits of all of the claimed subject matter is believed to be

in order and is respectfully solicited.

In the event any fees are required, please also charge our
Deposit Account No. 111833.

Respectfully submitted,

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